Ralph T. Muehleisen
Ph.D, P.E., LEED AP BD+C, INCE Board Certified
Principal Building Scientist, Argonne National Laboratory
9700 S. Cass Ave., Bldg. 202, Lemont IL 60439
Email: rmuehleisen@anl.gov, (630) 252-2547

Education

Ph. D. in Acoustics, Department of Aerospace Engineering, The Pennsylvania State University, 1996
B.S., Majors in Electrical and Computer Engineering and Physics, University of Wisconsin, 1989

Work Experience

2011–Present: Principal Building Scientist, Argonne National Laboratory (Argonne)
Principal building scientist, project manager/principal investigator, and scientific and section leader for the Argonne Building Energy Decision and Technology Research (BEDTR) Program. Provides oversight of technology- and engineering-related projects and provides quality control to all projects within the Argonne BEDTR Program. Principal investigator for numerous projects, including Acoustic Building Infiltration Measurement System, Bayesian Calibration of Building Energy Models, Reduced Order Building Energy Models for Stochastic Energy Modeling. Provides advice in areas of Building Science and Building/Grid Interaction to Argonne leadership and program managers at the DOE Building Technology Office. Provides program management (budgeting, planning, staffing, and sponsor interaction) for many Argonne Building Sciences Program projects. Acts as an BEDTR Program and Argonne representative to other labs, DOE, DOD, and industry.

2015-Present: Joint Staff Appointment, Computation Institute, University of Chicago
Performs computational research in many areas including modeling of complex urban systems, developing models and tools for smart building / smart grid interaction, and stochastic models of building energy use.

2011–Present: Adjunct Associate Professor, Illinois Institute of Technology
Teaches courses in basic building science, building enclosure design, and architectural acoustics. Advises M.S. and Ph.D. students in Architectural Engineering Civil Engineering, Mechanical Enginering, and Architecture programs.

2010–2011: Clinical Assoc. Professor, 2003–2010: Asst. Professor in the Department of Civil, Architectural, and Environmental Engineering at the Illinois Institute of Technology
Director of the Architectural Engineering Program, 2006–2010.
Director of the Miller Acoustics Laboratory, 2003–2010.
Developed and managed a funded research program in building science, architectural acoustics, and physical acoustics. Research projects include wind pressure coefficients for low-rise buildings; natural ventilation; control systems for building thermal energy storage systems; acoustics of green buildings; classroom acoustics; statistical analysis of acoustic isolation; noise and vibration control; acoustic radiosity; acoustic characterization of porous materials, including ceramic, metal, and carbon foams; high-intensity sonic air filter cleaners; and photoacoustic trace gas analysis. Developed and taught classes in building science, building noise and vibration control, building acoustics and illumination, building enclosure design, building systems integration, building electrical systems, and architectural engineering design. As AE program director, grew program from 35 undergraduate + no graduate students to 120+ undergraduate and 30+ graduate students while losing faculty members and working with budget cutbacks every year. Thesis advisor to 1 Ph.D. student, 6 M.S. students, and 40+ MAS students.

2000–Present: President and Principal Consultant for Muehleisen Consulting
Developed educational modules for EnergyPlus energy software for DOE. Provided architectural acoustics Webinar training for the U.S. Green Building Council (USGBC). Provided engineering acoustics short courses for the Air Movement and Control Association International, Inc. (AMCA) and Zebra Technologies. Developed theory and computer models for acoustics of automotive air filters for Greenlees Air Filters. Developed theory, software, and experiments for the in-situ measurement of acoustic absorption data for Kirkegaard and Associates. Developed acoustic theory, acoustic treatments, and audio/video systems for corporate conference rooms for Johns Manville.

Conducted general noise and vibration control consulting for numerous other clients, including universities, building owners and tenants, and music and video production studios.

1998–2003: Asst. Professor, Civil, Environmental, and Architectural Engineering, University of Colorado
Developed a funded research program in architectural acoustics, thermoacoustics, and data sonification with more than $700,000 in sponsored research resulting in more than 20 publications. Developed and taught classes in building noise control, acoustical room design, thermodynamics, fluid mechanics, heat transfer, and electrical circuits. Served as thesis advisor or committee member for 20 graduate students. Served as director of department computing laboratories. Designed and administered a mixed Windows-Unix network of more than 50 workstations. Supervised graduate teaching assistants and teaching fellows for undergraduate and K-12 outreach programs. Academic advisor to more than 100 undergraduate and graduate students.

1996–1998: Postdoctoral Fellow, Department of Physics, Naval Postgraduate School
Developed theory, software, and experiments for annular acoustic resonators, thermoacoustic heat engines and refrigerators, and active control of thermoacoustic systems. Advised and assisted graduate students with theoretical and experimental thermoacoustic research.

1995–1996: Postdoctoral Scholar, Applied Research Laboratory, Pennsylvania State University
Developed theory and software for vehicle acoustic signature classification. Developed analog and digital hardware and software for Internetted Unattended Ground Sensors, including acoustic, seismic, temperature, humidity, heat flux, position, and direction sensors. Developed theory, conducted experiments, and developed analog and digital hardware and software for active noise and vibration control. Designed, managed, and participated in outdoor acoustic propagation, atmospheric measurements, ground impedance measurements, and acoustic signature collection experiments.

Professional Licensure and Certifications

Licensed Professional Engineer in the State of Illinois, 062.060395, November 30, 2007–Present
Institute of Noise Control Engineers (INCE) – Board Certified Noise Control Engineer, 2010–Present
Leadership in Energy and Environmental Design (LEED) Accredited Professional, BD+C, 2009–Present

Honors and Awards

Elected to Board of Directors of Midwest Energy Efficiency Alliance (MEEA), 2014
Elected Fellow of the Acoustical Society of America (ASA), 2009
Elected to Board of Directors of INCE, 2009
Elected Vice President of Student Affairs and Education of INCE, 2006
Instructor at ASA/Office of Naval Research (ONR) Physical Acoustics Summer School, 2002
Department Faculty Service Award, University of Colorado, 2000
American Society for Engineering Education (ASEE)/ONR Postdoctoral Fellowship, ASEE/ONR, 1996–1998
Applied Research Lab Postdoctoral Scholar, Penn State Applied Research Lab, 1995–1996
Physical Acoustics Summer School Fellowship, ASA, 1992
Noise Technical Committee Young Presenter Award, ASA, 1992
Dean's Fellow, Pen State University, 1990-1993
Graduated with Distinction, UW-Madison College of Engineering, 1989
Outstanding Tutor Ward, UW-Madison Physics Club, 1988
Dean's Honor List, UW-Madison College of Engineering, 1985-1989

Professional Activities

Journal Editor
2011–Present: Associate Editor for Journal of Architectural Engineering (JAE)
2007–2014: Associate Editor for Proceedings of Meetings on Acoustics (POMA)

Journal Paper Peer-Review
American Journal of Physics (AJP)
Acoustic Research Letters Online (ARLO)
International Journal of Acoustics and Vibration (IJAV)
Journal of Architectural Engineering (JAE)
Journal of Applied Physics (JAP)
Journal of the Acoustical Society of America (JASA)
JASA Electronics Letters (JASA-EL)
Journal of Building Performance Simulation (JBPS)
Journal of Vibration and Acoustics (JVA)
Journal of Green Building
Noise Control Engineering Journal (NCEJ)
Proceedings of Meetings on Acoustics (POMA)
Smart and Sustainable Built Environment (SSBE)
IEEE Transactions on Smart Grid (TSG)

Proposal Peer Review
National Science Foundation (NSF) Civil, Mechanical, and Manufacturing Innovation (CMMI) Division
NSF Civil and Mechanical Systems (CMS)
NSF Applied Mathematics
NSF International Programs
United States Civilian Research and Development Fund
King Fahd University

Professional Society Membership
1988–Present: Institute of Electrical and Electronics Engineers (IEEE)
1989–Present: Audio Engineering Society (AES)
1990–Present: Acoustical Society of America (ASA), Elected Fellow in 2009
1994–Present: Institute of Noise Control Engineers (INCE)
1999–Present: American Society of Heating, Refrigerating, and Air-Conditioning Engineers (ASHRAE)
2004–Present: American Society of Materials and Testing (ASTM)
2005–Present: Society of Building Science Educators (SBSE)
2008–Present: American Society of Steel Construction (AISC)
2010–Present: International Building Performance Simulation Association (IBPSA)
1998–2011: American Society for Engineering Education (ASEE)
2003–2011: American Society of Civil Engineering (ASCE)
2003–2011: Architectural Engineering Institute (AEI)
2005–2013: U.S. Green Building Council, Chicago Chapter

Professional Society Committee Membership Activities
International Building Performance Simulation Association (IBPSA)
2013-Present: Vice Chair of Chicago Chapter of IBPSA-USA

ASHRAE
2014-Present: Chair of Technical Committee (TC) 4.7 subcommittee on Data Driven Modeling
2012–Present: Member of TC 1.9, Electrical Systems
2012–Present: Member of TC 4.7, Energy Calculations
2012–Present: Member of TC 7.6, Building Energy Performance
2008–Present: Member of TC 2.6, Sound and Vibration

ASTM
2011–Present: Voting Member of TC E06 Performance of Buildings
2004–Present: Voting Member of TC E33 Building and Environmental Acoustics

Acoustical Society of America (ASA)
2009–Present: Member of Public Relations Committee
2001–Present: Member of Architectural Acoustics Technical Committee (TCAA)
2005–2014: Chair of TCAA Green Building Acoustics Subcommittee
1998–Present: Member of Physical Acoustics Technical Committee (PATC)
1998–Present: Member of Education in Acoustics Committee
1997–Present: Member of Noise Technical Committee (TCN)
2004–2007: Coordinator of Noise Technical Committee "Young Presenter" award
2000–2006: Maintainer of Physical Acoustics Technical Committee email list
1999–2002: Member of Tutorials Committee

Institute of Noise Control Engineering (INCE)
2010–2014: Board Certification Exam Grader
2010–2014: Member of Board Certification Committee
2009–2011: Vice President of Student Affairs
2009–2010: Member of INCE Board of Directors
2005-2009: Chair of Student Affairs Committee
2007–2010: NOISECON/Internoise Student paper Competition Organizer
2005–2011: Reviewer for Biennial Hirschorn Best Paper Award
2007–2011: Reviewer for Student Paper Competition

U.S. Green Building Council (USGBC)
2008: LEED for Schools instructor acoustics fundamentals and training for USGBC
2007: LEED for Schools evaluator acoustics fundamentals and training for USGBC
2005–2007: Member of Commercial Interiors Core Committee
2006–2007: Acoustical Consultant to LEED for Schools
2006–2011: Corresponding Member of LEED for Schools Committee
2007–2011: Corresponding Member of Indoor Environmental Quality Technical Advisory Group
2007–2011: Corresponding Member of Energy and Atmosphere Technical Advisory Group
2007–2011: Corresponding Member of LEED Education Committee
2008–2011: Corresponding Member of LEED Healthcare Committee
2008–2011: Corresponding Member of USGBC Research Committee
2008–2011: Corresponding Member of LEED Technical Committee
2008–2011: Corresponding Member of LEED for Existing Buildings Committee
2008–2011: Corresponding Member of LEED for Laboratories Committee
2008–2011: Corresponding Member of LEED for Multiple Buildings

Publications

Patents

R. Muehleisen and G. Raman, "Acoustic Building Infiltration measurement System", Provisional US Patent Application filed Oct 31, 2014.

R. Muehleisen, "Photoacoustic Sensor", US Patent 8,561,454, filed Oct 28, 2010 and issued Oct. 22, 2013.

R.C. Troxell, P. Panikar, R. Muehleisen, R.E. Greenlees, and J.D. Troxell, "Apparatus and Method for Sonic Cleaning of an Air Filter for Wheeled and Tracked Vehicles," US Patent Application 2008/0085018 A1, filed Oct 10, 2006.

Journal Publications

Heo, Yeonsook, Godfried Augenbroe, Diane Graziano, Ralph T. Muehleisen, and Leah Guzowski. 2015. "Scalable Methodology for Large Scale Building Energy Improvement: Relevance of Calibration in Model-Based Retrofit Analysis." Building and Environment 87 (May): 342–50. doi:10.1016/j.buildenv.2014.12.016.

Heo, Y., Graziano, D. J., Guzowski, L., & Muehleisen, R. T. (2014). Evaluation of calibration efficacy under different levels of uncertainty. *Journal of Building Performance Simulation*, 1–10.

Muehleisen, R. T., & Patrizi, S. (2013). A new parametric equation for the wind pressure coefficient for low-rise buildings. *Energy and Buildings*, *57*, 245–249.

Muehleisen RT. A description of the acoustic requirements in LEED for Schools and a comparison to the ANSI S12.60 Classroom Acoustics Standard. *Noise Control Engineering Journal*. 2008;56(August):365–373.

Muehleisen RT, Beamer IV CW. Steady state acoustic radiosity for the prediction of sound pressure levels in enclosures with diffuse surfaces. *Noise Control Engineering Journal*. 2009;57(3):244–262.

Muehleisen RT, Beamer IV CW, Tinianov BD. Measurements and empirical model of the acoustic properties of reticulated vitreous carbon. *Journal of the Acoustical Society of America*. 2005;117(2):536–544.

Muehleisen RT. Effects of common indoor air pollutants on the speed of sound. *Acoustics Research Letters Online*. 2002;3(4):118–123.

Muehleisen RT, Beamer IV CW. Comparison of errors in the three- and four-microphone methods used in the measurement of the acoustic properties of porous materials. *Acoustics Research Letters Online*. 2002;3(4):112–117.

Muehleisen RT, Swanson DC. Modal coupling in acoustic waveguides: planar discontinuities. *Applied Acoustics*. 2002;63(12):1375–1392.

Muehleisen RT, Atchley AA. Fundamental modes of a constricted annular resonator: Theory and measurement. *Journal of the Acoustical Society of America*. 2001;109(2):480–487.

Atchley AA, Carter B, Muehleisen RT, Lin HT. Annular Thermoacoustic Engines. *Nonlinear Acoustics at the Turn of the Century: ISNA 15*. 2000:227–230.

Conference Proceedings

Bergerson, Joshua, and Ralph Muehleisen. 2015. "Bayesian Large Model Calibration Using Simulation and Measured Data for Improved Predictions." In . SAE Technical Paper. http://papers.sae.org/2015-01-0481/.

Muehleisen, R., Craig, B., Macumber, D., Hale, E., & Turner, J. (2014). Integration of the CEN/ISO Monthly Building Energy Model into OpenStudio. In *ACEEE Summer Study on Energy Efficiency in Buildings*. ACEEE.

Riddle, M., & Muehleisen, R. T. (2014). A Guide to Bayesian Calibration of Building Energy Models. In *ASHRAE/IBPSA-USA Building Simulation Conference 2014*. IBPSA-USA.

Chelliah, K., Raman, G., & Muehleisen, R. T. (2014). Leakage Detection Techniques Using Nearfield Acoustic Holography. In Proceedings of 4th Joint US-European Fluids Engineering Summer Meeting & 12th International Conference on Nanochannels, Microchannels, and Minichannels. ASME.

Heo Y, Graziano D, Guzowski L, Muehleisen RT, Evaluation of Calibration Efficacy Under Different Levels of Uncertainty. In: *Building Simulation 2013*: 1-8.

Muehleisen RT, Heo Y, Graziano DJ, Guzowski LB. Stochastic Energy Simulation for Risk Analysis of Energy Retrofits. In: *2013 Architectural Engineering Institute Conference*, 2013:1-10.

Guzowski LB, Graziano DJ, Heo Y, Muehleisen RT. Testing a Streamlined Project Evaluation Tool for Risk-Conscious Decision Making: The Chicago Loop Energy Efficiency Retrofit Initiative. In: *2012 ACEEE Summer Study on Energy Efficiency in Buildings*. ACEEE; 2012:139–151.

Heo Y, Zhao F, Lee SH, et al. Scalable Methodology for Energy Efficiency Retrofit Decision Analysis. In: *SimBuild 2012*. IBPSA-USA; 2012.

Muehleisen RT. Simple Design Tools for Earth-Air Heat Exchangers. In: *SimBuild 2012*. IBPSA-USA; 2012.
Pekdemir EA, Muehleisen RT, Pekdimir EA. A Parametric Study of the Thermal Performance of Double Skin Facades at Different Climates Using Annual Energy Simulation. In: *SimBuild 2012*. IBPSA-USA; 2012.
Muehleisen RT. Analysis of a pressure equalized rainscreen wall as a coupled array of helmholtz resonators. In: *Proceedings of Meetings on Acoustics*.Vol 11. Cancun, Mexico: ASA; 2012:45002–45010.
Muehleisen RT. Why we have two ears - take two: a revised experiment on sound localization. *Proceedings of Meetings on Acoustics*. 2011;8(1):25002–25011.
Attenborough K, Bolton JS, Davies P, et al. Publication of your paper on noise. *INCE Conference Proceedings*. 2010;221(1):3048–3054.
Muehleisen RT. Why we have two ears - A hands-on experiment comparing monaural and binaural hearing. *Proceedings of Meetings on Acoustics*. 2009;6(1):25001–25009.
Muehleisen RT. Analysis of uncertainty in building acoustic predictions using Monte-Carlo methods. *Proceedings of Meetings on Acoustics*. 2009;4(1):15004–15010.
Muehleisen RT. Review of the Implementation and Recent Changes of Several Acoustic Criteria Used in United States Schools. In: *Internoise 2009*; 2009.
Muehleisen RT. Simplified radiosity for predicting sound levels in rectangular enclosures. *Proceedings of Noise-Con 2008*. 2008:973–981.
Muehleisen RT. Sound recordings from the 2007 emergence of Brood XIII cicada. *Proceedings of Meetings on Acoustics*. 2008;2(1):10001–10007.
Muehleisen RT. Six Surface Steady State Acoustic Radiosity. In: *AEI 2008*. ASCE; 2008:55–65.
Muehleisen RT. A comparison of the acoustic requirements in LEED for schools and ANSI 12.60. In: *Proceedings of Noise-con 2007*. 2007:195–204.
Muehleisen RT, Beamer IV CW. Steady-State Diffuse Acoustic Radiosity for Sound Level Prediction in Rooms. *AEI 2006* . ASCE;2006:21–28.
Muehleisen RT. Use of the Monte Carlo method for uncertainty analysis of acoustic models and measurements. *Proceedings of Noise-Con 2005*. 2005;114(1):1295–1300.
Muehleisen RT, Beamer IV CW. Application of acoustic radiosity methods to noise propagation within buildings. *Proceedings of Noise-Con* 2005. 2005;114(1):1301–1307.
Muehleisen RT, Beamer IV CW, Tinianov BD, Hougland DS. Acoustic and Illumination Design of Conference Rooms. *AEI 2003:* ASCE; 2003:1–5
Muehleisen RT, Atchley AA. Lumped impedance of a planar discontinuity in an acoustic waveguide. In: Proceedings of the 16th International Congress on Acoustics.; 1998:2831–2832.
Muehleisen RT, Atchley AA. Simple model for temperature gradient formation in a short stack. In: Proceedings of the 16th International Congress on Acoustics..; 1998:807–809.
Muehleisen RT, Atchley AA, Hebert DD, Salindong AR. Measurements and Empirical Model of Temperature Evolution in a Short Stack. In: *AiChE Symposium Series No. 314, Heat Transfer-Baltimore*.Vol 93.; 1997:265–270.
Muehleisen RT, Atchley AA. Development of an Active Load Impedance. In: *Proceedings of Noise-con 97*. 1997:81–92.

Technical Reports

Heo, Y., Graziano, D. J., Guzowski, L. B., & Muehleisen, R. T. (2014). Evaluation of the Efficacy of Bayesian Calibration. In *ANL Report: ANL/DIS-14/1*. Argonne National Laboratory.
Guzowski, L. B., Muehleisen, R. T., Heo, Y., & Graziano, D. J. (2014). Comparative Analysis for the Chicago Energy Retrofit Project: Project Report. In *ANL Report: ANL/DIS-14/2*. Argonne National Laboratory.
Heo Y, Muehleisen RT, Guzowski LB. Selection of Parameter Subset for Bayesian Calibration. Project report for DOE Building Technologies Office. 2013.
Heo Y, Muehleisen RT, Graziano DJ, Guzowski LB. Quantification of Uncertainty in Building Energy Simulation Models. Project Report for DOE Building Technologies Office. 2013
Heo Y, Graziano DJ, Guzowski LB, Muehleisen RT. Evaluation of the Efficacy of Bayesian Calibration. Project Report for DOE Building Technologies Office. 2012
Muehleisen RT, Heo Y, Graziano DJ, Guzowski LB. Sensitivity Analysis of Normative Energy Model for High-Rise Buildings in Chicago. Project Report for DOE Building Technologies Office, 2012.

Book Reviews and Magazine Articles

Muehleisen RT. Architectural Acoustics by Marshall Long. *Noise Control Engineering Journal*. 2007;55(4):427–430.

Muehleisen RT. Acoustics of Green Buildings. *InformeDesign*. 2010;8(1):1–7.

Keynote, Plenary, and Special Invited Presentations

Muehleisen, Ralph T. 2015. "Semi-Automated, Low Touch, and Virtual – Emerging Trends Shaping the Future of Energy Audits." Keynote at the ASHRAE IL 2015 Meeting.

Muehleisen, Ralph T. 2015. "The Brave New World of Energy Efficiency." Keynote panel session at the MEEA Midwest Energy Solutions Conference.

Muehleisen RT. Acoustics of green buildings. Tutorial Lecture of the 162nd Meeting of the ASA. *The Journal of the Acoustical Society of America*. 2011;130(4).

Muehleisen RT. Acoustics as an integral factor in an indoor Green environment. In: *CAETS 3rd Forum on Worldwide Noise Sources*. Lisbon, Portugal; 2010.

Muehleisen RT. Noise Problems and Opportunities in "Green" Buildings. In: *2nd CAETS Forum on Worldwide Noise Sources*. Ottawa, CA: Council of the Academies of Engineering and Technical Sciences; 2009.

Muehleisen RT. Plenary Talk: Measurement of the Acoustic Properties of Acoustic Absorbers. In: *NOISECON 2007*. Reno, NV; 2007.

Muehleisen RT. Summer Lecturer at the Physical Acoustics Summer School, "Acoustical Signal Processing", Physical Acoustics Summer School, Asliomar CA, 2002.

Invited Conference Presentations/Published Abstracts

Muehleisen, Ralph T. 2015. "Understanding the Concepts of Uncertainty, Reproducibility, and Repeatability and the Application to Acoustic Testing (A)." The Journal of the Acoustical Society of America 137 (4): 2215–2215. doi:DOI:10.1121/1.49200.

Muehleisen, Ralph T. 2015. "Publish or Perish and Funding or failure—The Dark Side of a Career in Academia (A)." The Journal of the Acoustical Society of America 137 (4): 2316–2316. doi:10.1121/1.4920147.

Muehleisen, Ralph T. 2015. "Risk Analysis of Building Energy Retrofits." presented at the 2015 Chicago Actuarial Association.

Muehleisen, Ralph T. 2015. "Review and Recent Advancements in Thermoacoustic Refrigeration." presented at the ASHRAE 2015 Winter Conference.

Sun, Yuming, and Ralph Muehleisen. 2015. "Bayesian Calibration of Building Energy Models." presented at the ASHRAE 2015 Winter Meeting.

Muehleisen, R. T. (2014). Review of the role of uncertainties in room acoustics. *The Journal of the Acoustical Society of America*, *135*, 2203–2203.

Muehleisen, Ralph T. 2014. "Risk Analysis Related to Energy Use in the Chicago Loop." presented at the Chicago Council on Highrise Building Spring Seminar, June 12.

Muehleisen, R. T., & Stopka, M. (2014). Using New Construction to Inspire Energy Retrofits, Comparing Two Projects at Loyola University. Presented at the AIA 2014 Convention.

Muehleisen RT, Morrison AC. Low cost sound level meters for education and outreach. *The Journal of the Acoustical Society of America*. 2011;130(4):2362.

Piacsek, A. A., & Muehleisen, R. T. (2011). Using COMSOL multiphysics software to investigate advanced acoustic problems (A). *Journal of the Acoustical Society of America*, *130*, 2363–2363.

Muehleisen RT. Teaching room modes and diffraction using COMSOL MULTIPHYSICS. *The Journal of the Acoustical Society of America*. 2011;129(4):2646.

Muehleisen RT. Overview of current research activities in architectural acoustics. *The Journal of the Acoustical Society of America*. 2011;129(4):2407.

Muehleisen RT, Morrison AC. Muehleisen, Morrison - 2011 - Low cost sound level meters for education and outreach. *The Journal of the Acoustical Society of America*. 2011;130(4)

Piacsek AA, Muehleisen RT. Using COMSOL multiphysics software to investigate advanced acoustic problems. *The Journal of the Acoustical Society of America*. 2011;130(4):2363.

Muehleisen RT. A review of the new Leadership in Energy and Environmental Design v3 green building rating system. *The Journal of the Acoustical Society of America*. 2010;127(3):1721.

Muehleisen RT. Analysis of a pressure equalized rainscreen wall as a periodic array of Helmholtz resonators. *The Journal of the Acoustical Society of America*. 2010;128(4):2393.

Muehleisen RT. Applying the Guide to Uncertainty in Measurements (GUM) to Building Systems Engineering. In: *ASHRAE 2009 Winter Meeting*. Louisville, Ky; 2009..

Muehleisen, R. T. (2008), Why has it been so difficult to add acoustics to the criteria of the Leadership in Energy and Environmental Design green building rating system?, *The Journal of the Acoustical Society of America*, 124(4), 2545.

Jados B, Muehleisen RT. New equipment for the measurements of flow resistivity and porosity of open cell ceramic and metal foams. *The Journal of the Acoustical Society of America*. 2008;123(5):3034

Muehleisen RT. Animations, auralizations, and visualizations in architectural acoustics. *Journal of the Acoustical Society of America*. 2006;120(5):3073.

Muehleisen RT. An acoustics education program for the very young. *Journal of the Acoustical Society of America*. 2006;120(5):3117.

Muehleisen RT, Beamer IV CW. Measurement of thermo-viscous functions of RVC and wire mesh stacks. In: *1st International Workshop on Thermoacoustics*.; 2001.

Conference Presentations/Published Abstracts

Chelliah, Kanthasamy, Ganesh G. Raman, Ralph T. Muehleisen, Hirenkumar Patel, and Eric Tatara. 2015. "Building Leakage Detection and Quantification Using Statistically Optimized Nearfield Acoustic Holography Technique (A)." The Journal of the Acoustical Society of America 137 (4): 2325–2325. doi:10.1121/1.4920491.

Patel, Hirenkumar J., Kanthasamy Chelliah, Ganesh Raman, Ralph T. Muehleisen, and Eric Tatara. 2015. "Detecting Building Leakages Using Nearfield Acoustic Holography Technique: A Numerical Simulation (A)." The Journal of the Acoustical Society of America 137 (4): 2233–2233. doi:10.1121/1.4920147.

Muehleisen, R. T., Tatara, E., Raman, G., & Chelliah, K. (2014). Acoustic building infiltration measurement system . *The Journal of the Acoustical Society of America*, *136*, 2172–2172.

Muehleisen, R. T., Tatara, E., & Bethke, B. (2014). Relationship between air infiltration and acoustic leakage of building enclosures. *The Journal of the Acoustical Society of America*, *135*, 2379–2379.

Muehleisen RT. Acoustics Modules Developed in the IIT Research Experience for Teachers Program. *The Journal of the Acoustical Society of America*. 2008;123(5):3519.

Muehleisen RT. Analysis of uncertainty in building acoustic predictions using Monte-Carlo methods. *The Journal of the Acoustical Society of America*. 2008;123(5):3504.

Karimabad AS, Muehleisen RT. Computer simulations of a maximum length sequence modulated photoacoustic spectrometer (A). *Journal of the Acoustical Society of America*. 2007;122(5):2966.

Muehleisen RT, Karimabad AS. Application of maximum length sequences to photoacoustic chemical analysis (A). *Journal of the Acoustical Society of America*. 2007;121(5):3086.

Muehleisen RT. Acoustics curriculum for architectural engineers. *Journal of the Acoustical Society of America*. 2006;119(5):3263.

Beamer IV CW, Muehleisen RT. A comparison of partially specular radiosity and ray tracing for room acoustics modeling. *Journal of the Acoustical Society of America*. 2005;117:2499.

Muehleisen RT, Beamer IV CW, Tinianov BD. Measurement of the acoustic properties of reticulated vitreous carbon. *Journal of the Acoustical Society of America*. 2005;117(4):2554.

Muehleisen RT, Beamer IV CW. A comparison of computational models for predicting speech intelligibility and speech privacy. *Journal of the Acoustical Society of America*. 2004;116(4):2638.

Beamer IV CW, Muehleisen RT. Radiant exchange in partially specular architectural environments. *Journal of the Acoustical Society of America*. 2003;114(4):2411.

Muehleisen RT. Teaching noise control to architectural engineers. *Journal of the Acoustical Society of America*. 2003;113(5):2303.

Beamer IV CW, Muehleisen RT. A comparison of radiosity with current methods of sound level prediction in commercial spaces. *Journal of the Acoustical Society of America*. 2002;112(5):2437.

Muehleisen RT. Animations and auralizations for noise control education. *Journal of the Acoustical Society of America*. 2002;112(5):2344.

Muehleisen RT, Beamer IV CW. Acoustic radiosity for the computation of sound fields in diffuse environments. *Journal of the Acoustical Society of America*. 2002;111(5):2331.

Muehleisen RT. Acoustic resonators as air quality sensors. *Journal of the Acoustical Society of America*. 2001;110(No 5):2628.

Muehleisen RT. Computer simulation and virtual experiments for architectural acoustics education. *Journal of the Acoustical Society of America*. 2001;110(5):2697.

Muehleisen RT, Beamer IV CW. Thermoviscous functions of wire mesh and RVC stacks. *Journal of the Acoustical Society of America*. 2001;109(5):2404.

Beamer IV CW, Muehleisen RT. Comparison of techniques for measuring the acoustic properties of porous materials. *Journal of the Acoustical Society of America*. 2000;108(5):2519.

Underwood TS, Morley BS, Kuritz BL, Muehleisen RT. Redesign of a small thermoacoustic refrigerator. The Journal of the Acoustical Society of America. 2000;108(5):2554.

Muehleisen RT. Development of an acoustics curriculum in an architectural engineering department. *Journal of the Acoustical Society of America*. 1999;106(4):1999.

Underwood T, Smith DS, Muehleisen RT. Design and construction of a small thermoacoustic refrigerator. *Journal of the Acoustical Society of America*. 1999;104(4).

Muehleisen RT. Software for thermoacoustic modeling. *Journal of the Acoustical Society of America*. 1998;104(3):1772.

Muehleisen RT, Atchley AA. Simple model for temperature gradient formation in a short stack. *The Journal of the Acoustical Society of America*. 1998;103(5):2840.

Lin HT, Muehleisen RT, Atchley AA. Investigation of an annular thermoacoustic prime mover. *Journal of the Acoustical Society of America*. 1997;101(5):3021.

Lin HT, Muehleisen RT, Atchley AA. Numerical investigation of a two stack annular prime mover. *Journal of the Acoustical Society of America*. 1997;104(5):3671.

Lin H-T, Choe Y, Muehleisen RT, Atchley AA. Resonant modes of a constricted annular resonator (A). *Journal of the Acoustical Society of America*. 1997;101(5):3021.

Muehleisen RT, Lin HT, Atchley AA. Control system analysis of an annular prime mover. *Journal of the Acoustical Society of America*. 1997;101(5):3021.

Muehleisen RT. Higher-order modal reflection and transmission in acoustic waveguide step discontinuities. (A). *Journal of the Acoustical Society of America*. 1996;99(4):2555.

Muehleisen RT. Reflection, radiation and coupling of higher order modes in finite length rigid walled rectangular ducts. 1996.

Muehleisen RT. Higher-order modal reflection and transmission in acoustic waveguide junctions. (A). *Journal of the Acoustical Society of America*. 1996;99(4):2556.

Muehleisen RT. Reflection of higher order modes at the end of a baffled rectangular duct. *Journal of the Acoustical Society of America*. 1995;97(5a):3255.

Muehleisen RT, Swanson DC. Plane wave radiation impedance for a source mounted in the side of an infinite duct with mean flow. *Journal of the Acoustical Society of America*. 1994;97(5a):2836.

Muehleisen RT, Swanson DC. An impedance model for actively controlled finite waveguides. *Journal of the Acoustical Society of America*. 1992;91(4a):2349.

Invited Seminars and Colloquia

"Uncertainties and Probabilities in Building Energy Modeling" for Chicago Computation Group, May 2014

"Uncertainties and Probabilities in Building Energy Modeling" for CAEE Graduate Student Seminar, Illlinois Institute of Technology, April 2014

"Risk Analysis Related to Energy Use in the Chicago Loop" for Chicago Council on Highrise Buildings Spring Seminar, June 2014.

"Net Zero Buildings", Seminar for AEE, September, 2011.

"Acoustics of Green Buildings", Argonne DIS Seminar, April 2011.

"Pressure Equalized Rainscreen Walls as Acoustic Resonators", Penn State Graduate Program in Acoustics Seminar, January 2010.

"Pressure Equalized Rainscreen Walls", IIT CAEE Graduate Seminar , November 2010.

"Conflicts and Synergies Between Good Acoustics and Energy Efficient Building Design", IIT CAEE Graduate Seminar, Nov. 2009

"The LEED Green Building Rating System", IIT CAE Graduate Seminar Colloquium, Apr. 2006.

"Sound and Hearing", IIT ASCE Student Chapter Seminar, Mar. 2006.

"Traffic Noise", Colloquium for the Illinois DOT, Nov. 2005.

"The Human Auditory System", IIT ASCE Student Chapter Seminar, Apr. 2005.

"Acoustic Radiosity", Colloquium for the IIT Department of Civil and Architectural Engineering, May 2003.

"Thermoacoustic-Stirling Systems", Colloquium for Department of Physics and Astronomy, University of Wyoming, Feb. 2003.

"Acoustic Radiosity", Colloquium for Department of Physics and Astronomy, Brigham Young University, Oct. 2002.

"Acoustic Resonators as Indoor Air Quality (IAQ) Sensors", Seminar at the ONR Physical Acoustics and Resonance Meeting, June 2001.

"Recent Advances in Thermoacoustic Refrigeration", Colloquium for Department Civil, Environmental and Architectural Engineering, University of Colorado, Nov 1999.

"Annular thermoacoustic prime movers" Thermal Systems Seminar at Los Alamos National Laboratory, July, 1998.

"Systems Identification Alternatives to Swept Sine and Curve Fitting ", Seminar at the ONR Physical Acoustics and Resonance Meeting, April 1997.

"Recent Advances in Architectural Acoustics", Colloquium for Department Civil, Environmental and Architectural Engineering, University of Colorado, April 1996.